

Replacement Page 1 - 1st Paragraph**BACKGROUND OF THE INVENTION**

The invention relates to annular composite workpieces, in particular rolling bearing rings, and a cold rolling method for the manufacturing thereof from at least two hollow cylindrical workpieces made of different materials or the same materials with different strength (in the following different materials).

Replacement Page 2 - 2nd, 3rd, and 4th Full Paragraphs

SUMMARY OF THE INVENTION

According to the invention, the object is solved for a method with the features of the ~~preamble of claim 1~~ mentioned kind in that the hollow cylindrical workpieces are formed to a composite workpiece by means of a generally known axial roll forming method. The hollow cylindrical workpieces are preferably inserted loosely into each other before rolling. The hollow cylindrical workpieces have such a play relative to one another that they can barely be joined by hand. Rings as the hollow cylindrical workpieces are inserted into each other and are formed to a composite workpiece by an axial ring roll forming method. Alternatively, pipes as hollow cylindrical workpieces are inserted into each other and formed by an axial pipe roll forming method to a composite workpiece. At least one of the surfaces touching one another of the hollow cylindrical workpieces is coated with a material, e.g. aluminum.

Furthermore, the object is solved by an annular composite workpiece comprised of at least two hollow cylindrical workpieces made of different materials, wherein the composite workpiece is produced by an axial roll forming method with the features claimed in claim 7. The composite workpiece is preferably a bearing ring. The bearing race of the bearing ring is made of antifriction bearing steel and the support ring is made of a steel of reduced high quality. The composite workpiece can also be a gear ring. One of the workpieces can be comprised of a nonferrous metal, in particular aluminum. One of the workpieces can be made of plastic material. One of the workpieces can also be made of powder material.

~~Advantageous variations and embodiments are the subject matter of the dependent claims.~~

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BRIEF DESCRIPTION OF THE DRAWINGS

The invention is explained in more detail in the following with the aid of several embodiments based on the axial roll forming of pipes.

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DESCRIPTION OF PREFERRED EMBODIMENTS

According to Fig. 1, two pipes 1 and 2 are prepared for forming. They are, if necessary, turned on the outside and turned on the inside and then inserted into one another.

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Fig. 6 shows the production of a composite outer ring 11 of a rolling bearing by means of an inner roll forming tool 12 and two outer roll forming tools 6. The high-strength pipe 1 forms again the bearing race and is now located on the inside in comparison to Fig. 2 or Fig. 3.

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List of reference numerals

- 1 - workpiece
- 1' – bearing race
- 2 - workpiece
- 2' – support ring
- 3 - workpiece
- 4 – workpiece
- 5 – workpiece
- 6, 6a, 6b – roll-forming tool for forming outer profile
- 7 – rolling arbor
- 8 – composite inner ring of rolling bearing
- 9 – composite inner ring of rolling bearing
- 10 - gear ring
- 11 – composite outer ring of rolling bearing
- 12 - roll-forming tool for forming inner profile